

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
23 June 2005 (23.06.2005)

PCT

(10) International Publication Number  
**WO 2005/057176 A3**

- (51) International Patent Classification<sup>7</sup>: **C07K 16/00**, C12N 15/09, C12Q 1/00, G01N 33/00
- (74) Agent: **BORDEN, Paula, A.**; BOZICEVIC, FIELD & FRANCIS LLP, 1900 University Avenue, Suite 200, East Palo Alto, California 94303 (US).
- (21) International Application Number: PCT/US2004/041876
- (81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 8 December 2004 (08.12.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/528,373 9 December 2003 (09.12.2003) US
- (84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- (71) Applicant (*for all designated States except US*): **THE REGENTS OF THE UNIVERSITY OF CALIFORNIA** [US/US]; 1111 Franklin Street, 12th Floor, Oakland, California 94607-5200 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): **NEWMAN, Jack, D.** [US/US]; 1715 Sacramento Street, Berkeley, California 94702 (US). **RENNINGER, Neil** [US/US]; 412 B. Kains Avenue, Albany, California 94706 (US). **MARTIN, Vincent J.J.** [CA/CA]; 4921 Montclair, Montreal, Quebec H4V 2K7 (CA). **KEASLING, Jay, D.** [US/US]; 1160 Sterling Avenue, Berkeley, California 94708 (US). **REILING, Keith, Kinhead** [US/US]; 3534 Rhoda Avenue, Oakland, California 94602 (US).
- Published:  
— with international search report
- (88) Date of publication of the international search report:  
20 October 2005
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: METHOD FOR IDENTIFICATION OF ENZYMES

(57) Abstract: The present invention provides a method of identifying an enzyme, the method generally involving contacting a sample containing an enzyme with a selected enzyme substrate, where the contacting provides for covalent binding of the substrate to an amino acid of the enzyme to form a covalently modified enzyme; and determining the amino acid sequence of at least a portion of the covalently modified enzyme, using any available peptide sequencing technology, such as tandem mass spectrometry. The present invention further provides methods of identifying a nucleic acid encoding an enzyme, the methods generally involving identifying an enzyme; and, based on the amino acid sequence of at least a portion of the enzyme, designing nucleic acid probes or primers that hybridize to the nucleic acid encoding the enzyme.



WO 2005/057176 A3